

Appln No. 09/826,969

Amdt date April 12, 2005

Reply to Office action of January 12, 2005

REMARKS/ARGUMENTS

The above identified patent application has been amended and reconsideration and reexamination are hereby requested.

Claims 1, 3 - 8, 10 -13, 17 - 26, 28, and 29 are now in the application. Claim 2 was previously canceled. Claims 9, 14 - 16, and 27 have been canceled. Claims 1, 3 - 7, 10 - 13, 17, 18, 21, and 24 have been amended. New Claims 28 and 29 have been added.

Some of the claims are amended for minor inconsistencies in hyphenation of terms.

The Examiner allowed independent Claims 5 and 6. The Examiner found Claims 17 - 26 allowable if amended to include the limitations of their base claim and any intervening claims. Claims 17, 18, 21, and 24 are amended to include the limitation of independent Claim 13 and the intervening Claim 14, from which they all depend. Claims 19, 20, 22, 23, 25, and 26 are dependent on these amended allowable claims and are believed allowable based upon their allowable base claims.

The Examiner has rejected Claims 1, 3, 4, 7 - 10, 13 - 16, and 27 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,704,374 to Belotserkovsky. Claims 9, 14 - 16, and 27 are canceled. Independent Claims 1, 3, and 7 are amended to overcome the rejection. Claim 13 is amended to depend on Claim

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7. The rejection of independent Claim 4 is respectfully traversed.

The Applicants have amended Claim 1 to call for (underlining added for emphasis) "estimating phase errors from a phase difference between the training tone and the reference signal derived from the training tone ... wherein the estimating phase errors includes first tone tracking of each training tone and then calculating a phase angle of the training tone." Belotserkovsky does not disclose the limitations of amended Claim 1. Therefore, amended Claim 1 is believed to be allowable over the cited reference.

The Applicants have amended Claim 3 to call for "wherein the estimating time-domain phase errors includes first tone tracking of each training tone and then calculating a phase angle of the training tone". This claim is believed to be allowable for the same reasons that amended Claim 1 is allowable.

Claim 4 calls for (underlining added for emphasis) "providing a reference signal derived from the training tone and data tones of the down-converted signal." In the second paragraph of page 2 of the Office Action, the Examiner indicates that this limitation of Claim 4 is disclosed by the input to element 60 in figure 4 of Belotserkovsky and the input to element 72 in figure 3 of this reference. The Applicants

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respectfully disagree, pointing out that Belotserkovsky only discloses providing reference signals derived from training tones and not "from the training tone and data tones of the down-converted signal" as recited in Claim 4. In fact, training tone and reference tone are synonymous in Belotserkovsky and are used interchangeably as seen in the abstract of this reference. This is further supported by statements such as those starting on line 60 of column 4 of Belotserkovsky: "In operation, sample selection loop 62 extracts the location of a training symbol in the received OFDM signal and delays the OFDM signal in order for the phase locked loop 64 to analyze the phase of a sample that is located at a predetermined location within the training symbol. More specifically, correlator module 68 correlates the received digitized OFDM signal with time-domain samples of a known training sequence ... stored in a local memory.... Thus, a peak in the power of the correlation output may be utilized to determine when the received signal coincides with the stored training sequence." Regarding the input to element 72 of figure 3, Belotserkovsky states: "Sample selection module 72 receives the index of the peak location from the peak detector module 70 and uses the index to delay the received digitized OFDM signal such that predetermined samples, within the training sequence carried by the digitized signal, can be analyzed ...." Belotserkovsky, column 5, lines 37 - 43.

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In short, the focus of Belotserkovsky is on using the training sequences that arrive within the data but not the data themselves or a combination of training tones and data. The disclosure of this reference, therefore, is distinguished from "providing a reference signal derived from the training tone and data tones of the down-converted signal" of Claim 4. Accordingly, the Applicants submit that Claim 4 is not anticipated by Belotserkovsky under 35 U.S.C. §102(e).

The Examiner also rejected Claim 7 as anticipated by Belotserkovsky. The Applicants have amended Claim 7 to call for (underlining added for emphasis) "wherein the training tone tracking circuit includes: a training tone tracking PLL, where an input of the training tone tracking PLL is coupled to an output of the down conversion circuit, a multiplier having a multiplier input coupled to the output of the training tone tracking PLL, and a multiplier output coupled to a training tone tracking circuit output, wherein the training tone tracking PLL includes: a phase detector for receiving the down-converted signal at an input of the phase detector and providing a detected phase error at an output of the phase detector, and a carrier detector, having an input coupled to the output of the phase detector, and an output coupled to the output of the training tone tracking PLL, and wherein the phase detector includes a tone tracking unit and a phase angle calculation

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circuit." Belotserkovsky does not disclose the limitations of amended Claim 7. Therefore, amended Claim 7 is believed to be allowable as well.

Claims 8 and 10 are dependent on Claim 7. As such, these claims are believed allowable based upon Claim 7.

The Examiner has rejected Claims 11 and 12 under 35 U.S.C. §103(a) as being unpatentable over Belotserkovsky in view of U.S. Patent No. 5,406,592 to Baumert. These claims also depend on Claim 7 and are believed allowable based upon Claim 7.

Claim 13, as amended, depends on Claim 7. As such, Claim 13 is believed allowable based upon Claim 7.

New Claims 28 and 29 are similar to claims 4 and 17 and believed allowable for similar reasons.

Accordingly, in view of the above amendment and remarks it is submitted that the claims are patentably distinct over the prior art and that all the rejections to the claims have been overcome. Reconsideration of the above Application is respectfully requested.

Respectfully submitted,  
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